

REINFORCED NETTED SHEET

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority of Taiwanese Application No. 092209332, filed on May 21, 2003.

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a netted sheet, more particularly to a reinforced netted sheet that is composed of intervening coarse and fine wires.

10 2. Description of the Related Art

A plastic netted sheet is usually used as a wrapper for flowers, a décor for a dress, a screen for a window, and for hanging ornaments. A conventional plastic netted sheet 1 is shown in Figure 1 to include a plurality of intersecting inclining fine wires 11 that are welded to one another at their intersecting junctures. Knots 12 are formed at the intersection points of the wires 11.

When an external force is applied to the netted sheet 1, such as by pulling or hanging an object, the knots 12 and the fine wires 11, through their tenacities, are subjected to the external force. For example, the netted sheet 1 is fixed on a wall plate for hanging ornaments, such as an earring 21 and a necklace 22. The earring 21 and the necklace 22 can be hung on any of the knots 12. When the force exerted on the netted sheet 1 is excessive, the fine wires 11 or the knots 12 can break.

Although only a portion of the netted sheet 1 is damaged, because the netted sheet 1 is used as a décor or a wrapper, the whole netted sheet 1 has to be replaced to maintain an appealing appearance.

5 If a stronger netted sheet is desired, the most direct method is to increase the coarseness of the fine wires 11. However, such a solution will result in a corresponding increase in material costs.

SUMMARY OF THE INVENTION

10 Therefore, the object of the present invention is to provide a reinforced netted sheet that has a portion of its material weight increased to enhance its strength.

 According to this invention, a reinforced netted sheet comprises a first wire set and a second wire set
15 intersecting the first wire set. Each of the first and second wire sets includes a plurality of spaced-apart coarse and fine wires. The coarse wires intervene the fine wires. The coarse wires of the first and second wire sets are welded to one another at intersecting
20 junctures of the coarse wires.

BRIEF DESCRIPTION OF THE DRAWINGS

 Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference
25 to the accompanying drawings, of which:

 Figure 1 is a fragmentary schematic view of a conventional netted sheet;

Figure 2 is a fragmentary schematic view of the first preferred embodiment of a reinforced netted sheet according to the present invention;

Figure 3 is a view similar to Figure 2, but illustrating the reinforced netted sheet in a state of use;

Figure 4 is an enlarged fragmentary schematic view of the second preferred embodiment of a reinforced netted sheet according to the present invention; and

Figure 5 is an enlarged fragmentary schematic view of the third preferred embodiment of a reinforced netted sheet according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before the present invention is described in greater detail, it should be noted that like elements are denoted by the same reference numerals throughout the disclosure.

Referring to Figure 2, the first preferred embodiment of a reinforced netted sheet 100 according to the present invention is made of plastic, is adapted to be used as a wrapper for flowers, a décor for a dress, a veil, etc., and is adapted to be fixed on a wall plate for hanging ornaments, such as earrings, or as a screen for window.

In this embodiment, the reinforced netted sheet 100 comprises a first wire set 3 and a second wire set 4 intersecting the first wire set 3. Each of the first and second wire sets 3, 4 includes a plurality of

spaced-apart coarse and fine wires 31, 41. Each of the first and second wire sets 3, 4 has a plurality of pairs of adjacent coarse wires 31, 31'. Each of the pairs of the coarse wires 31, 31' intervenes every two groups of the fine wires 41, 41'. Each of the groups of the fine wires 41, 41' includes three fine wires 41, 41'. Each pair of the coarse wires 31 of the first wire set 3 are welded to one pair of the coarse wires 31' of the second wire set 4 at the intersecting points thereof, thereby resulting in a rhombus with four large knots 32 at four corners thereof.

It should be noted that although the number of the fine wires 41, 41' in each group in this embodiment is three, it can be increased or decreased depending on actual requirements. For example, it can be increased to four fine wires 41, 41' or decreased to two fine wires 41, 41'. In addition, the number of the coarse wires 31, 31' which intervene two groups of the fine wires 41, 41' in each of the first and second wire sets 3, 4 may be one instead of two.

Through the four large knots 32 at the intersections of the coarse wires 31, 31' that cooperate to form a strong resisting force against upper and lower tensile forces, the strength of the reinforced netted sheet 100 is enhanced. When the reinforced netted sheet 100 is pulled or an object is hung thereon, even if stress concentration occurs, the reinforced netted sheet 100

can restore to its original state and is not likely to break easily.

Referring to Figure 3, when the reinforced netted sheet 100 of the present invention is adapted to be used for hanging ornaments 50, such as an earring 52 and a necklace 51, each of the ornaments 50 can be clamped or hung on any one of the large knots 32. The weight of the ornament 50 carried by each large knot 32 will be shared by the other large knots 32 within the same rhombus, such that the strength of the entire netted sheet 100 is enhanced.

Referring to Figure 4, the second preferred embodiment of the reinforced netted sheet 100 according to the present invention is shown to be substantially similar to the first preferred embodiment. However, in this embodiment, each of the coarse wires 31, 31' of each of the first and second wire sets 3, 4 (see Figure 2) is formed from two fine wires 311, 311' that are close to each other and that are partially adhered along the length of the fine wires 311, 311' to form the coarse wires 31, 31'. The coarseness of each fine wire 311, 311' corresponds to that of a respective one of the fine wires 41, 41'. Such a design can reduce breaking rate of the reinforced netted sheet 100 during its manufacturing process, the reason of which will be described hereinafter.

When a die of a net making machine (not shown) for

making the reinforced netted sheet 100 is provided with large diameter and small diameter extrusion holes so as to extrude different degrees of coarseness of the wires, since the resisting force against extrusion at the large diameter extrusion hole is small, and since the resisting force against extrusion at the small diameter extrusion hole is large, unequal resisting forces exist in the die. Particularly, when the difference between the diameters of the extrusion holes is large, extrusion is difficult at the small extrusion hole and can even be interrupted, thereby resulting in breaking of the wires. Thus, the coarse wires 31, 31' of the present invention are made by providing the die with pairs of small diameter extrusion holes that are located close to each other. During extrusion, these pairs of extrusion holes produce pairs of fine wires 311, 311' that are very close to each other. The fine wires 311, 311' in each pair are adhered partially along the length of the wires, thereby forming the coarse wires 31, 31' of the first and second wire sets 3, 4. By providing the die with extrusion holes that have similar diameters, the resisting forces against extrusion can be substantially uniform, and the breaking rate of the fine wires 41, 41' can be minimized.

Referring to Figure 5, the third preferred embodiment of the reinforced netted sheet 100 according to the present invention is shown to be substantially similar

to the second preferred embodiment. However, in this embodiment, each of the coarse wires 31, 31' intervenes every two groups of the fine wires 41, 41'. Each of the groups of the fine wires 41, 41' includes four fine wires
5 41, 41'. The structure of the coarse wires 31, 31' is similar to that of the second preferred embodiment, that is, each of the coarse wires 31, 31' is formed from two fine wires 311, 311' that are close to each other and that are partially adhered along the length of the fine
10 wires 311, 311'.

While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments
15 but is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangements.